

# Spaceport News

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John F. Kennedy Space Center



SURVEYOR 1



MARINER 9

## Historic launches laid groundwork for future space endeavors

*Less than a month after the 35th anniversary of Americans in space, another space exploration milestone is being celebrated. Thirty years ago, on May 30, 1966, Surveyor 1 was launched from Cape Canaveral's Launch Pad 36A on its way to the first soft-landing on the moon. The effort led the way to*

*Apollo 11's lunar landing mission three years later.*

*Five years after the launch of Surveyor, on the same date, Mariner 9 was launched from Pad 36B. That mission, which successfully orbited Mars in 1971, contributed information leading to the Viking lander missions five years later.*

## Mission update



**Mission:** STS-78 on Columbia.

**Launch date, time:** June 20, 10:49 a.m. from Launch Pad 39B.

**Primary Payload:** Life and Microgravity Spacelab (LMS).

**Mission Synopsis:** During the nearly 16-day-long mission, the seven-member crew will conduct microgravity research experiments in the Life and Microgravity Spacelab module mounted in the payload bay. The majority of the life sciences experiments will be devoted to the study of the effects of microgravity on human physiology.

**Landing date, time:** July 7, 8:46 a.m. at the Shuttle Landing Facility.

## Coordinated effort



SHUTTLE LANDING FACILITY (SLF) Coordinator Larry Parker keeps close watch during the landing of the orbiter Endeavour on Runway 33. Endeavour touched down at 7:09 a.m. EDT, May 29, bringing to a successful close Space Shuttle Mission STS-77. As SLF coordinator, Parker oversees all aircraft landings at KSC from the NASA tower, located near the midpoint of the three-mile-long Shuttle runway. During an orbiter end-of-mission landing, he monitors all traffic in the immediate airspace to ensure that all is in readiness for the orbiter's return. Parker is an employee of KSC Base Operations Contractor EG&G Florida, Inc. This photo appears courtesy of Chris O'Meara of the Associated Press in cooperation with NASA.

## Natural gas station establishes KSC as a leader in alternative energy use

One of the most advanced natural gas vehicle fueling stations in the country opened at KSC with a ribbon-cutting ceremony May 30.

Speakers included KSC Director Jay Honeycutt, Director of Installation Operations Marvin Jones and Richard Jolley, president and general manager, EG&G Florida Inc. Honeycutt cut the ribbon by driving through it with a natu-

ral gas-powered vehicle.

KSC's new fueling station is located at the Government Services Administration (GSA) Motor Pool in the Industrial Area. The station is the test bed for a new type of gas compressor that provides the capacity to fuel one of the largest fleets of government-owned vehicles in the nation, said H.T. Everett, chief of

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## NASA employees can bring sons to work June 14

NASA Kennedy Space Center employees are invited to bring their sons to work June 14 to give them a firsthand look at KSC work areas.

NASA-KSC employees may bring sons aged nine and older to work areas on both KSC and Cape Canaveral Air Station.

Interested contractor employees who wish to participate can direct inquiries to their own Human Resources Office to learn if a comparable program is available.

In most cases a mother or father will bring their son but the sponsor can be another family member, or another NASA-KSC worker. More than one son in a family may attend.

Advanced badging is recommended, especially for NASA employees who will be accessing KSC through Cape Canaveral Air Station.

Badges will be available from June 10-13 in the Equal Opportunity Program Office, located in Room 2321 at Headquarters. No telephone requests will be honored.

Activities will begin at 8 a.m. in the IMAX Theater II at the KSC Visitors Center. Center Director Jay Honeycutt will give remarks, followed by KSC astro-

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## KSC assists at ValuJet crash site

Kennedy Space Center (KSC) assisted in the search for wreckage from the flight of ValuJet 592 which plunged into the Everglades on May 10, killing 110 people.

A KSC helicopter, flown by Norbert Violette, KSC's chief helicopter pilot, traversed the crash site May 25 with an infrared scanner.

National Transportation Safety Board (NTSB) investigators decided to use the scanner, which is being developed for a specialized project, to help locate large pieces of the aircraft, believed to be buried in a crater created on the swamp floor by the impact of the crash.

The Kennedy Space Center helicopter is equipped with specialized brackets that

enabled it to carry the thermal imager, said Marvin Jones, KSC's director of Installation Operations.

The bracket, which was developed to hold high-intensity spotlights and the Forward Looking Infrared (FLIR) scanning system for pad security and traffic control during night launches of the Space Shuttle, has also been adapted to hold television cameras, Jones said.

Gerry Brown, of the NASA Aircraft Management Office at NASA Headquarters, said he became aware of the possibilities of using the scanner after talking to an Air Force Academy classmate and longtime friend, Charlie Weinert of Finley Lakes, NY, who was working on the development of the imager.



KSC'S CHIEF Helicopter Pilot Norbert Violette prepares a NASA helicopter to fly to the Everglades, site of the ValuJet Flight 592 crash. At left is the bracket which was used to hold an infrared scanner as it was flown over the site.

"We were discussing the device and the idea came that it might be useful in the search," Brown said.

"I knew of the capabilities of the helicopter at Kennedy so I

put my friend in touch with the NTSB, and the NTSB in touch with Kennedy to see if it could be worked out."

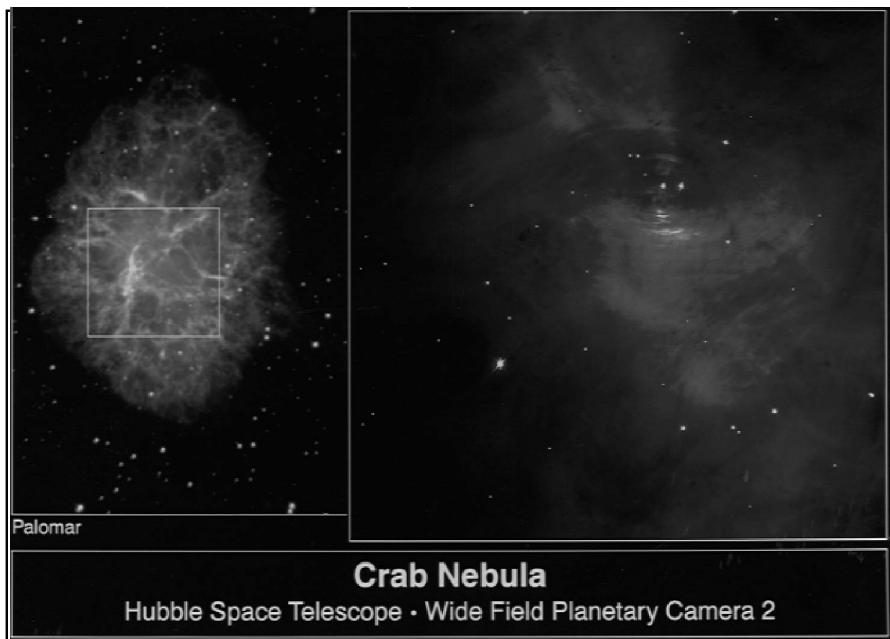
Violette said he appreciated the opportunity to help.

## Oklahoma City children visit center, receive astronaut's personal touch



A GROUP of 22 children who were affected by the bombing of the federal building in Oklahoma City on April 19, 1995, received some personal attention from Astronaut Jim Halsell when they visited Kennedy Space Center May 23. The children, pictured at right, toured the Launch Status Center at the KSC Visitor Center, viewed the film *The Dream is Alive* in the IMAX theater, made ice cream sundaes at the Lunch Pad, and walked through the Explorer Shuttle mockup. A highlight of the tour was the viewing of the launch of a Hughes Communications, Inc. satellite on a Delta-II rocket that evening from Cape Canaveral Air Station. In the photo above, Halsell gives a student a hands-on demonstration of the effects of a liftoff. The trip was arranged through a "recovery camp" sponsored by the Seventh Day Adventist Church. After the visit some of the participants were quoted in *The Press*, an Oklahoma City newspaper. Karen Jones, whose husband was killed in the bombing, accompanied her son and daughter on the trip. "Kennedy Space Center was fantastic," Jones said. "They were wonderful to us and made the kids smile. They don't smile much."





## Hubble uncovers Crab Nebula

A NEW SEQUENCE of Hubble Space Telescope images of a tremendous stellar explosion is giving astronomers a remarkable look at the dynamic relationship between the tiny Crab Pulsar and the vast nebula that it powers. The photo on the left shows a ground-based image of the entire Crab Nebula, the remnant of a supernova explosion witnessed more than 900 years ago. The nebula, which is 10 light-years across, is located 7,000 light-years away in the constellation Taurus. The filaments concentrated toward the edges of the nebula are remnants of the star that were ejected into space by the explosion. At the center of the Crab Nebula lies the Crab Pulsar -- the collapsed core of the exploding star. The Crab Pulsar is a rapidly rotating neutron star -- an object only about six miles across, but containing more mass than the sun. As it rotates at a rate of 30 times per second, the Crab Pulsar's powerful magnetic field sweeps around, accelerating particles and whipping them out into the nebula at speeds close to that of light.

THE PICTURE on the right shows a Hubble Space Telescope image of the inner parts of the Crab. The pulsar itself is visible at the left of the pair of stars near the center of the frame. Surrounding the pulsar is a complex of sharp knots and wisp-like features. This image is one of a sequence of Hubble images taken over the course of several months. This sequence shows that the inner part of the Crab Nebula is far more dynamic than previously understood.

## KSC's community involvement



APPROXIMATELY 60 representatives from small businesses, government and nonprofit organizations participated in the first Continual Improvement/Total Quality Management Community Workshop, sponsored by NASA/KSC and its major contractors, May 9 at the Brevard Community College Lifelong Learning Center. From the left, Warren Camp, deputy director of the Administration Office, Donna Cox, a Continual Improvement (CI) specialist, and Betty Cromie, secretary in the Continual Improvement Office, share information about KSC's CI efforts at a NASA booth. KSC Deputy Director Gene Thomas initiated the workshop in order to share KSC expertise with community organizations. The CI office reports several requests have been received for similar events in the future.

### Health and Wellness program focuses on laughter

Kennedy Space Center's Occupational Medicine and Environmental Health Services Office is stressing the physical and emotional benefits of laughter.

During June, KSC's three

medical facilities will have packets available on the subject "Humor and Laughter; Good for Your Health." Pick up a packet at the medical offices or contact Carol Roth, BOC-005.



## Marking tradition

AT LEFT, Tess Westover, front, a Brevard Community College nursing student, and Vicky Chamberlain, a Lockheed Martin Space Operations Company employee and BCC student, perform a traditional Tinikling bamboo dance during the Asian Pacific Awareness month luncheon May 23 at the Mission Briefing Room in the Operations and Checkout Building. Below, Marina Harris, of Cost and Commercial Accounts, right, works the bamboo poles with Inocencia Urban of Port St. John. Harris taught participants the dance, named for a Philippine bird. Former Congressman Norman Mineta, applauding at left, was the guest speaker.





CENTER DIRECTOR Jay Honeycutt waits behind the wheel of a natural gas-powered vehicle as Richard Jolley, president and general manager of EG&G Florida, Inc., and Marvin Jones, director of Installation Management and Operations, fill up the tank.

## Gas. . .

(Continued from Page 1)

the NASA/KSC Logistical Operations Support Branch.

"The station, which was designed to handle 400 vehicles, will allow KSC to be a leader in natural gas fleet operations in particular and in alternative energy in general," Everett said. "The technology for this station was also developed so that it could be adapted for use by local governments, industry and institutions."

The station was developed through a unique government/industry partnership with the KSC Alternative Fuels Office, Dresser-Rand Industries and the Gas Research Institute so that it could serve as a showcase for natural gas technology, said EG&G Florida senior engineer Bobbie Sirmons.

"The first construction phase includes two gas dispensers, but eventually there will be six," Sirmons explained. "In its final phase, it will look just about like any other filling station, except for compressed gas storage tanks."

The dispensers look and operate similar to gasoline pumps. They are designed to fill a compressed gas tank in 2 to 3 minutes while keeping it safe for users. Alternative-fueled vehicles are both safer to operate and as efficient as those that burn more conventional fuels,

Sirmons said.

Currently, the fueling station serves about 36 natural gas-powered light-duty vehicles and one 44-passenger bus. GSA will procure bi-fueled vehicles, or ones that can use either gasoline or natural gas, as they become available from auto manufacturers. It is anticipated that by 1999, about 80 percent of the GSA fleet under procurement for KSC — about 900 vehicles — will be able to use natural gas, hydrogen and methane mixtures, or other alternative fuels.

"We also have plans for a final natural gas fleet of 1,200 vehicles and will build a second natural gas station in the Launch Complex 39 area within two years," Everett said. "Natural gas is clean, domestically produced and cheap. Alternative-fueled vehicles are a major element of KSC's efforts to reduce its impact on the environment while reducing our dependence on foreign oil."

Fuel is provided by the 25-mile long KSC natural gas pipeline that went into operation in mid-1994. The pipeline was constructed at no cost to NASA by City Gas Co. of Florida. The ensuing conversion of several KSC facilities to natural gas since then has eliminated more than 115 tons of particulate emissions from entering the atmosphere and the burning of more than 3 million gallons of diesel fuel.

## Sons. . .

(Continued from Page 1)

naut candidate Frank Caldeiro and Steve Van Meter from KSC's robotics laboratory.

Following the program participants are free to have lunch at Spaceport USA or one of the employee cafeterias and then accompany their sponsors to the work sites.

Due to safety requirements, certain operational areas — anyplace requiring a KSC Area Permit Badge — will be off limits.

In the Industrial Area, this includes the Hypergol Maintenance Facility (HMF) (pending daily activities), and the Launch Equipment Test Facility (LETF).

In the Launch Complex 39 area, off-limits areas include the Rotational Processing and Storage Facility (RPSF); Vehicle Assembly Building (VAB); Orbiter Processing Facility (OPF) bays 1, 2, and 3; and Launch Pads 39A and B. In the Launch Control Center (LCC) restricted areas are Room 1P10 on the first floor; the Central Data Systems area and Record and Playback Systems area I and II on the second floor; and firing rooms 1, 2, 3, and 4 on the third floor.

Due to critical flight hardware processing, payload operations areas will be accessible, with proper notification and badging, for limited periods of time only to authorized person-

## Sons' Day Schedule

*NOTE: This program is for NASA employees and their guests. Due to limited seating in the IMAX Theater, only one parent or sponsor may accompany their son(s). Seating is on a first-come, first-served basis.*

**8:10 a.m.** - Center director's welcome.

Guest speaker - Steve Van Meter with the KSC robots.

Video - *Thank God the Dream is Alive.*

Guest speaker - Astronaut candidate Fernando "Frank" Caldeiro.

**9:45 a.m.** - Closing remarks.

**Lunch** - At Spaceport USA or any employee cafeteria.

**Afternoon** - Employees and sons disperse to work sites.

nel who normally work in those areas.

If a sponsor works in a restricted area, he or she may arrange for another sponsor to bring the son to their own unrestricted work area.

For additional information, contact Barbara Powell at 867-7208.



John F. Kennedy Space Center

## Spaceport News

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